

REMARKS

As an initial matter, Applicants appreciate the Examiner's reconsideration and withdrawal of the obviousness rejection over the Kobayashi et al. reference and for taking the time to discuss this case today.

Claims 1, 6-11, 13 and 15-25 are pending and stand rejected under 35 U.S.C. §103(a) over U.S. Pat. No. 4,874,480 ("Sonoda") in view of U.S. Pat. No. 3,619,300 ("Heller").

As indicated previously, the presently claimed invention relates to a nonsludging zinc phosphate treatment liquid composition used for the formation of zinc phosphate coatings on metal surfaces. Specifically, Applicants have discovered through intensive research that by controlling the relationship between the zinc concentration and the concentrations of phosphoric acid, nitric acid, cations, and anions in a zinc phosphate treatment liquid composition, they can obtain compositions having the benefit of being nonsludging. See Applicants' response to the October 18 Office Action, pages 10-11 and Applicants' Summary of the Invention. Because of the number of variables and their changeability (depending upon their respective concentrations), the relationship is quite complex and is best demonstrated by the claimed mathematical condition(s).

The Sonoda reference is directed to a process for improving the lubricity of titanium and titanium alloys by forming a zinc phosphate film thereon. The zinc phosphate film is formed by first treating the titanium and titanium alloys with a colloidal titanium based surface adjustment agent and then immersing the metals as the cathode in an electrolytic conversion coating solution. The coating solution of Sonoda comprises 1–50 g/l of zinc and 3–140 g/l of phosphate and an undisclosed amount of nitric acid.

Although Sonoda states that its coating solution does not cause sludge formation, the Examiner correctly notes that *Sonoda does not teach "that its nitric acid is present in the claimed amount."* Indeed, the only disclosure in Sonoda whatever as to an amount of nitric acid appears in the composition of Example 1, which amount of nitric acid is 2 g/l or 0.03174 mol/l and is far below the claimed range of 0.65 to 0.90 mol/L. Further, the composition as a whole fails to satisfy the mathematical condition of Applicants invention.

The Heller reference does not remedy the deficiencies of Sonoda. The Heller reference is a 1971 patent directed to a basic zinc phosphate coating process for coating a

metal surface consisting of aluminum, iron or zinc or alloys of same which comprises treating said metal surface with a solution of zinc ion, phosphate ion and nitrate ion. The Examiner incorrectly concludes, without reasoning or explanation, that it would have been obvious to use the weight ratio of nitrate ions to phosphate ions from Heller in combination with the ranges of zinc and phosphate disclosed in Sonoda to arrive at the claimed inventions. Since Sonoda claims to already prevent formation of sludge, ***there would be no reason to look to Heller***. A proper case for *prima facie* obviousness must include motivations to combine that are “articulated reasoning with some rational underpinning.” See *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006) (cited with approval in *KSR Int’l v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-41, 82 USPQ2d 1385, 1396 (2007)) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”).

Unsupported assertions are not adequate. As a result, the Examiner has not met her burden of providing “articulated reasoning with some rational underpinning” as to why a person of ordinary skill in the art using common sense at the time of the invention would reasonably look to Heller to solve a problem ***already said to be solved by Sonoda***. *Ex Parte Rinkevich et al*, Appeal 20071317 (May 29, 2007). Absent such a showing, Applicants respectfully request that the Office withdraw its rejection.

Finally, even assuming for the sake of argument that there were a rational basis for increasing the nitric acid concentration in Sonoda to satisfy the weight ratio of Heller, which there is not, Applicants have provided evidence by way of Comparative Examples 1-3 that demonstrate that sludge is still formed at the weight ratios provided in Heller if the mathematical conditions of equation 6 are not satisfied. Thus, the combination of Heller with Sonoda does not provide the claimed invention. Applicant has obtained an unexpected result: the satisfaction of Applicants’ mathematical equation ensures the absence of sludge and is therefore “highly advantageous on an industrial or commercial basis.” (See Specification at 11).

For all of the foregoing reasons, Applicants respectfully request that the Office withdraw its rejection and issue a notice of allowance in this case.

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